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April 9, 2007

Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, SW
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ORIGINAL

Re: *Amendment of Parts 1, 21, 73, 74 and 101 of the Commission's Rules to Facilitate the Provision of Fixed and Mobile Broadband Access, Educational and other Advanced Services in the 2150-2162 and 2500-2690 MHz Bands – WT Docket No. 03-66*

Amendment of Parts 21 and 74 of the Commission's Rules with Regard to Licensing in the Multipoint Distribution Service and in the Instructional Fixed Television Service for the Gulf of Mexico – WT Docket No. 02-68

WRITTEN EX PARTE COMMUNICATION

Dear Ms. Dortch:

I am writing on behalf of the Wireless Communications Association International, Inc. ("WCA") in response to the "Supplement to Petition for Reconsideration" filed by the American Petroleum Institute ("API") supporting its request that the Commission reverse its 2006 decision not to license Broadband Radio Service ("BRS") or Educational Broadband Service spectrum ("EBS") in the Gulf of Mexico.¹ In the Supplement, API agrees for the first time with WCA's long-held position that, if there is to be a Gulf Service Area, the innermost boundary of that service area be established no closer than 12 nautical miles from the shoreline.³ API's change of

¹ See Letter from Wayne V. Black, Esq. *et al.*, Counsel to American Petroleum Institute, to John J. Schauble, Deputy Chief, Broadband Division, Federal Communications Commission, WT Docket No. 02-68 *et al.* (filed Jan. 10, 2007) ["API Supplement" or "Supplement"].

² See *Amendment of Parts 1, 21, 73, 74 and 101 of the Commission's Rules to Facilitate the Provision of Fixed and Mobile Broadband Access, Educational and Other Advanced Services in the 2150-2162 and 2500-2690 MHz Bands*, Order on Reconsideration and Fifth Memorandum Opinion and Order and Third Memorandum Opinion and Order and Second Report and Order, 21 FCC Rcd 5606, 5762 (2006) ["2006 BRS/EBS Second R&O and Order on Reconsideration"].

³ See API Supplement at 1. Note, however, that WCA continues to believe that any Gulf Service Area must exclude the circular 35-mile radius Geographic Service Areas ("GSAs") of incumbent BRS or EBS licensees, just as the service area awarded to any land-based BRS Basic Trading Area ("BTA") auction winner excluded the protected

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heart is but a very small step in the right direction *if* there is to be a Gulf Service Area.⁴ API's filing, however, begs the more important question – did the Commission err last year when it concluded that the public interest would best be served by not licensing **use** of the 2.5 GHz band in the Gulf of Mexico? WCA remains convinced that the Commission made the right decision. Indeed, the record clearly reflects that adoption of API's proposed service rules, even with this modification, could have a dramatic, adverse impact on the ability of nascent land-based BRS and EBS systems to meet the service needs of the public. Until the Commission better understands the potential impact that licensing the 2.5 GHz band in the Gulf would have on service to the millions of Americans who live and work near the Gulf, the Commission should preserve the *status quo*.

API has yet to refute in any meaningful way the record evidence that Gulf-based operations would cause devastating interference to land-based BRS/EBS operations in the Gulf, with little countervailing benefit to the public.⁵ While API claims an "urgent need" for access to BRS spectrum in the Gulf, API continues to rely on rhetoric rather than hard data to support its position. Notwithstanding the Commission's finding just last year that "[t]he record does not demonstrate a demand for BRS or EBS operations in the Gulf of Mexico at this time,"⁶ API maintains that "[t]he need for access to the BRS in the Gulf of Mexico is unquestionable."⁷ As before, API expects the Commission to take this statement at face value – to this day, API has not presented any demand studies or other actual evidence that existing spectrum allocations in the Gulf cannot meet the demand for wireless services there. That is hardly surprising – there is ample unused spectrum in the Gulf, and in the months since the Commission found no need for

service area of an incumbent pursuant to former Section 21.933(a) of the Rules (a rule carried forward as Section 27.1206(a)(2)). *See Amendment of Parts 21 and 74 of the Commission's Rules with Regard to Filing Procedures in the Multipoint Distribution Service and in the Instructional Television Fixed Service*, Report and Order, 10 FCC Rcd 9589,9603-04 (1995).

⁴ API's agreement with WCA's proposal is hardly a major concession, given that the Commission proposed in the *Notice & Proposed Rulemaking* in this proceeding to draw the innermost boundary of a new "Gulf Service Area" at the limit of the territorial waters of the United States in the Gulf, which is approximately 12 nautical miles from the coastline, noting that this is the same boundary that was used in another flexible use service – the 2.3 GHz band Wireless Communication Service. *See Amendment of Parts 21 and 74 of the Commission's Rules With Regard to Licensing in the Multipoint Distribution Service and in the Instructional Television Fixed Service for the Gulf of Mexico*, Notice of Proposed Rulemaking, 17 FCC Rcd 8446, 8452-3 (2002) [*"Gulf NPRM"*]. In fact, since the release of the *Gulf NPRM* the Commission has consistently employed that same boundary in adopting rules for new flexible use services regulated under Part 27, including the upper 700 MHz band, the 700 MHz guardband, the 1390-1392 MHz band, and the 1392-1395/1432-1435 MHz bands. *See Service Rules for the 746-764 and 776-794 MHz Bands, and Revisions to Part 27 of the Commission's Rules*, First Report and Order, 15 FCC Rcd 476, 500 n.137 (2000); *Service Rules for the 746-764 and 776-794 MHz Bands, and Revisions to Part 27 of the Commission's Rules*, Errata, 15 FCC Rcd 25495 (2000).

⁵ *See* Consolidated Opposition and Comments of Wireless Communications Int'l Ass'n, Inc., WT Docket No. 03-66 *et al.*, at 33-37 (filed Aug. 18, 2006) [*"WCA Consolidated Opposition"*].

⁶ *2006 BRS/EBS Second R&O and Order on Reconsideration*, 21 FCC Rcd at 5762.

⁷ API Supplement at 1.

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licensing the 2.5 GHz band in the Gulf, the Commission has auctioned close to 100 MHz of additional spectrum that can be used in the Gulf to provide precisely the sorts of services API envisions for the 2.5 GHz band.’ In fact, contrary to what API has suggested, PetroCom License Corporation (a major provider of telecommunications services in the Gulf) recently advised the Commission that the Gulf is already well-served by multiple wireless and satellite providers:

[T]he assignment of Coastel’s [cellular] license to PetroCom will benefit consumers of telecommunications services in the Gulf of Mexico (the “Gulf”) by increasing PetroCom’s ability to provide state-of-the-art telecommunications services. At the same time, the transaction will enhance competition in the Gulf, *where consumers’ wireless requirements are currently satisfied by multiple Commercial Mobile Radio Service (“CMRS”) providers and, unlike on land, numerous satellite-based and fixed and mobile wireless competitors in multiple bands.*’

Moreover, save for agreeing with WCA’s proposal for locating the innermost boundary of a Gulf Service Area no closer than 12 nautical miles from the shoreline, API has yet to respond to the overwhelming evidence in the record that Gulf operations would cause a clear and present danger to land-based services.” Notwithstanding API’s unsubstantiated suggestion that the rules applicable to land-based systems will suffice, WCA has demonstrated that the interference environment associated with a Gulf Service Area is vastly different from that

⁸ Just recently the Commission auctioned 90 MHz of spectrum within the Gulf of Mexico in the 1.9/2.1 GHz band for Advanced Wireless Service offerings. *See Auction of Advanced Wireless Services Licenses Scheduled for June 29, 2006*, Public Notice, DA 06-238, at Attachment A (rel. Jan. 31, 2006). That spectrum would appear to be ideally suited for the uses API cites. *See Service Rules for Advanced Wireless Services in the 1.7 GHz and 2.1 GHz Bands*, Report and Order, 18 FCC Rcd 25162, 25167-69 (2003) (establishing flexible use for AWS). Similarly, in Auction 69, the Commission just auctioned the right to utilize the 1.4 GHz band in the Gulf. *See Auction of 1.4 GHz Bands Licenses Scheduled For February 7, 2007*, Public Notice, DA 06-1016 (rel. Aug. 28, 2006). The Commission has specifically stated that this spectrum is available for both fixed and mobile services, including wireless internet and other high speed data services. *Id.* at 2.

This spectrum is in addition to a myriad of other spectrum already licensed for use in the Gulf of Mexico. For example, the Commission has issued licenses to Stratos Offshore Service Company for all 30 MHz of the 2.3 GHz Wireless Communications Service (“WCS”) band spectrum in the Gulf of Mexico. While land-based WCS operators have struggled due to the lack of equipment capable of providing economically viable services in the face of potential interference from Digital Audio Radio Service (“DARS”) terrestrial repeaters, those same concerns are not applicable to Gulf-based WCS. Gulf services are commercial, rather than consumer oriented in nature, and it is highly unlikely that any DARS terrestrial repeaters will be placed in the Gulf. Yet, API is silent as to why the existing WCS assignment at 2.3 GHz cannot meet its needs.

⁹ Application of Bachow/Coastel LLC to Assign License for Cellular Radiotelephone Service Station KNKA412 to PetroCom License Corporation, FCC File No. 0002892513, Exhibit 1 at 1 (filed Feb. 1, 2007); *see also* Exhibit 1 at 7 (“[T]here are multiple land-based CMRS providers competing with PetroCom. In addition, there are seven or more competing providers of satellite-based and fixed communications – providers whose target market is also the energy services industry.”).

¹⁰ *See* WCA Consolidated Opposition at 33-40.

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encountered on land. As already acknowledged by the Commission, this difference is attributable to “ducting,” a phenomenon that causes wireless signals to propagate over much longer distances when traveling over water. The Commission explained the problem as follows:

[T]he overriding issue with respect to possible interference from, and to, Gulf systems is the matter of signal propagation, specifically, the propagation of signals over large bodies of water. Although not an exact science, the process of evaluating the propagation of signals over land masses has been refined to the point where the results of applying widely-accepted propagation models, such as the modified Epstein/Peterson model required by the Commission’s **Two-Way Order** for MDS and ITFS two-way systems, are sufficiently reliable for all but the most unusual signal paths. Unfortunately, the propagation of signals over large bodies of water can differ markedly from signal propagation over land and no comparably acceptable and standardized model is available for calculating over-water propagation. The principal difference involved, at least with respect to Gulf waters, is the presence of “ducting” along the signal path. Simply put, ducting is a phenomenon whereby a radio signal is trapped within and between stratified layers of the atmosphere which have non-uniform refractivity indexes. This layering is caused by climatological processes such as subsidence, advection, surface heating and radiative cooling and the ducts created due to these factors can extend for distances of tens to hundreds of miles. Ducting of signals, including MDS/ITFS microwave signals, enables these signals to travel relatively unattenuated for distances far greater than would occur without the presence of the duct.”

The Commission has found that there are two significant upshots of the ducting phenomenon. First, the Commission has concluded that there is a “**certainty** that ducting will occur between Gulf and land-based stations,” that this ducting will cause interference over much greater distances than caused by land-based BRS and EBS systems, and that Gulf-based BRS systems must therefore comply with interference protection requirements that are more stringent than those imposed on land-based facilities.” Second, the Commission has concluded that “it will be virtually impossible for current licensees to achieve [full coverage of the population along the Gulf coast] if they must afford full interference protection to Gulf of Mexico systems.”¹³ Thus, the Commission determined that:

Given the much greater population density of the land-based relative to Gulf systems, the steps taken to modify one land-based main or booster station so that it can fully protect a very few Gulf stations might mean the loss of service to

¹¹ *Gulf NPRM*, 17 FCC Rcd at 8463-64 (footnotes omitted)

¹² *Id.* at 8465-66 (emphasis in original).

¹³ *Id.* at 8467.

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hundreds or thousands of households in the urban or suburban area the main or booster station was designed to serve. We believe this tradeoff would be unacceptable and we are therefore proposing that land-based stations be allowed to provide a lesser degree of protection to Gulf stations than Gulf stations must provide to land stations.¹⁴

Thus, *before API can seriously expect the Commission to depart from the status quo and license BRS/EBS facilities in the Gulf; it must establish that ducting will neither cause interference from Gulf-based facilities to land-based operations nor force land-based systems to cripple their operations near the Gulf to avoid any potential for ducting to cause interference to Gulf-based users.* While API unabashedly asserts that newer technologies, such as smart antennas, obviate the risk of interference, API provides absolutely no technical studies establishing that such technologies will assure land-based operators of an interference-free operating environment when ducting does occur.¹⁵ There is no doubt that these technologies do serve to mitigate interference under many circumstances, but WCA is unaware of any studies that have found these technologies are sufficiently robust to preclude interference from Gulf-based operations to land-based operations during ducting conditions.

Moreover, API's proposal for use of the Commission's current BRS/EBS rules to address operation in and around the Gulf of Mexico ignores a host of practical problems. The rules were not designed to govern operations in the Gulf, or to restrict operations on land to protect uses in the Gulf. Among the many questions API has yet to answer relating to its assertion that the current BRS/EBS rules can apply to a Gulf license:

- Can Gulf systems even be designed that will comply with the 47 dB μ V/m limit on signal strength at the boundary of the GSAs of incumbent BRS/EBS licensees and BTA authorization holders given that ducting can relay Gulf signals far beyond normal line-of-sight limitation in the 2.5 GHz band?¹⁶
- How does API anticipate that designers of land-based systems will avoid exceeding the 47 dB μ V/m limit at the boundary of any Gulf Service Area, knowing that their signals can be ducted well into the Gulf of Mexico? Certainly, the public interest will not be served by requiring land-based systems to hobble their designs to account for ducting into the Gulf, when doing so precludes the offering of a reliable, economic service to consumers living near the Gulf.

¹⁴ *Id.*

¹⁵ See Reply of American Petroleum Institute to Oppositions to Petition for Reconsideration, WT Docket 02-68, at 8 (filed Aug. 31, 2006).

¹⁶ API concedes that ducting is a transient phenomenon. *Id.* at 7. However, because ducting is not uncommon, Gulf systems will have to be designed to assure compliance with the 2.5 GHz band rules even in the event of ducting. Simply requiring Gulf licensees to cure interference on a case-by-case basis as API suggests is not enough. *Id.* at 9. Because ducting conditions last for relatively short periods of time (hours in most cases), when it does occur land-based operators will find it difficult, if not impossible, to identify interference caused by temporary ducting conditions, notify the Gulf-based operator, and secure relief.

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- Under newly-adopted Section 27.1221(b) of the Commission's Rules, the licensee of a base station constructed above its height benchmark must reduce its signal strength as measured at a cochannel base station in a neighboring GSA that is within its height benchmark to -107 dBm. The calculation of a given base station's height benchmark is based on a predication of the base station's line-of-sight using a standard formula. The undisputed record before the Commission establishes that, with respect to stations in the Gulf, ducting can result in the reception of signals far beyond the line-of-sight prediction under that formula, and thus the safe harbor formula will not provide the requisite protection from interference caused by Gulf-based stations." How does API propose to avoid interference to land-based BRS and EBS systems when ducting can lead to situations in which Gulf-based systems exceed -107 dBm at a land-based base station, even where both stations are within their height benchmark? The need for the cochannel interference protection provided by the height benchmarking rule has been well-established, yet the rule as drafted is inadequate to provide the requisite protection from Gulf-based stations given the propensity of signals to "duct" far beyond line of sight.

In short, the Commission was absolutely correct when, just last year, it concluded that the public interest would best be served by refraining from licensing the 2.5 GHz band in the Gulf of Mexico. In considering use of the 2.5 GHz band in the Gulf, the Commission has recognized the serious risks posed by ducting. Yet API has failed to propose service rules to govern operations in the Gulf that are carefully crafted to assure that service to the tens of millions of people who live and work within the BTAs surrounding the Gulf of Mexico is not jeopardized by service to a few within the Gulf itself. Just this week, the Commission terminated its consideration of mobile phone use on airplanes because "[t]he comments filed in this proceeding provide insufficient technical information that would allow the Commission to assess whether the airborne use of cellular phones may occur without causing harmful interference to terrestrial **networks**."¹⁸ The same certainly holds true here – too many questions remain unanswered regarding ducting for the Commission to jeopardize BRS/EBS land-based operations near the Gulf.

¹⁷ See Comments of Wireless Communications Ass'n Int'l, Inc., WT Docket No. 03-66, at 38-39 (filed Jan. 10, 2005); WCA Consolidated Opposition at 36-37.

¹⁸ *Amendment & the Commission's Rules to Facilitate the Use of Cellular Telephones and Other Wireless Devices Aboard Airborne Aircraft*, Memorandum Opinion and Order, FCC 07-47, at ¶ 3 (rel. April 3, 2007).

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Pursuant to section 1.1206(b)(1), this notice is being filed electronically with the Commission via the Electronic Comment Filing System for inclusion in the public record of the above-referenced proceeding. Should you have any questions regarding this presentation, please contact the undersigned.

Respectfully submitted,

/s/ Paul J. Sinderbrand

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Counsel for The Wireless Communications
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cc: Hon. Kevin J. Martin
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